

RISK FRAMEWORK: SUPERFUND PROGRAM

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SEDIMENT REMEDIES

- Monitored Natural Recovery
- In-situ Capping
- In-situ Treatment
- Dredging and...
 - Treatment
 - Upland disposal
 - Confined aquatic disposal

CHALLENGES

SOURCE CONTROL

WIDESPREAD CONTAMINATION

DYNAMIC ENVIRONMENT

MIXED USES

ECOLOGICALLY IMPORTANT AREAS

PROPERTY OWNERSHIP

OPERATING PORTS, NAVAL FACILITIES



SUPERFUND FRAMEWORK

- Conceptual Site Model
- Remedial Action Objectives
- Risk Assessment
- Nine Criteria Evaluation
- Remedy Selection/Implementation
- Long - Term Monitoring
- Five - Year Reviews

Conceptual Site Model

- What are the contaminants of concern?
- What are the receptors and pathways of concern?

Remedial Action Objectives

- Identify early
- Use to focus data needs for risk assessment and alternatives analysis
- Acknowledge different RAOs for different parts of the site
- Revisit throughout process

RISK ASSESSMENT

- Human health
- Ecological
- “Classic Risk Assessment”
 - contaminants of concern
 - pathways
 - receptors
 - effects
- Unique parameters



WEIGH OPTIONS: THE NINE CRITERIA

- OVERALL PROTECTIVENESS
- COMPLIANCE WITH ARARS
- IMPLEMENTABILITY
- LONG -TERM EFFECTIVENESS/ PERMANENCE
- SHORT- TERM EFFECTIVENESS
- REDUCTION OF TOXICITY, MOBILITY OR VOLUME THROUGH TREATMENT
- COST EFFECTIVENESS
- STATE ACCEPTANCE
- COMMUNITY ACCEPTANCE

REMEDY SELECTION AND IMPLEMENTATION

- No presumptive remedies
- Combinations of remedies likely
- Treatment best for highly concentrated, highly mobile waste
- Confinement best for widespread, low levels of contamination
- Treatment technologies being tested
 - few ready for full scale implementation
 - most promising for large scale, production facilities

FINAL PART OF FRAMEWORK...

ABSOLUTELY CRITICAL

- Long - term monitoring
- Five - year reviews

SEDIMENT CLEANUP IN REGION 10

- COMMENCEMENT BAY, WA
 - ST. PAUL WATERWAY
 - SITCUM WATERWAY
- EAGLE HARBOR, WA
- MANCHESTER LAB, WA
- WARD COVE, AK
- PUGET SOUND NAVAL SHIPYARD, WA
- LOWER DUWAMISH WATERWAY, WA
- PORTLAND HARBOR, OR
- COEUR D'LENE RIVER BASIN
- COMMENCEMENT BAY, WA
 - HYLEBOS WATERWAY
 - THEA FOSS WATERWAY
 - MIDDLE WATERWAY
 - ASARCO
- HARBOR ISLAND, WA
 - 2 SHIPYARDS
 - EAST & WEST WATERWAY
- PACIFIC SOUND RESOURCES, WA
- McCORMICK AND BAXTER, OR

EFFECTIVE APPROACHES

- Involve interested parties early - communities, states, tribes, trustees
- Scope RI/FS to collect adequate data
- Review alternatives early
- Coordinate with upcoming navigational dredging and development projects



EFFECTIVE APPROACHES

(continued)

- Seek habitat enhancement and restoration opportunities concurrent with cleanup
- Set clear remedial action objectives
- Define long term monitoring to meet objectives